



Crosslake WWTF Improvement Project

Date: September 6, 2018
To: City Council
From: Mike Rardin, PE *MR*
Cc: Ted Strand - Public Works Director
Subject: Monthly Project Update

Project Description

The Project can generally be described as follows:

1. Pretreatment improvements including replacing the existing mechanical fine screen, addition of a self-priming grit pump, adding a new blower for the aerated grit removal system, and adding a new handrail and grating system.
2. Construct a new 82,000 gallon equalization basin.
3. Construct a new rapid mix manhole with ferric chloride addition.
4. Construct a new control structure to feed the final clarifiers.
5. Construct a new effluent metering manhole.
6. Miscellaneous electric actuator valve replacements.
7. Re-routing the existing WAS line into the biosolids storage tanks.
8. Furnish and install new blowers for the existing aerated biosolids storage tank
9. Furnish and install a new backwash blower
10. Construct a 30,000 gallon backwash supply water storage tank.

Work Progress - Tenth Project Update

On September 15, 2017 the City of Crosslake awarded the 2017 Waste Water Treatment Plant Improvement Project to Eagle Construction Company, Inc. of Little Falls, MN for the amount of \$2,227,000.00. The contractor began to mobilize equipment and materials to the site on October 5 in order to prepare for the construction of the treatment plant improvements.

October thru July - the contractor completed the concrete work for the EQ Basin, Water Storage Tank, and the Clarifier Control Structure as well as completed installation of the process piping and water mains, all of the blowers, the electrical conduit and associated electrical wiring.

August - the contractor completed Mechanical Fine Screen installation, Water Storage Tank pump installation, and installation of the Rapid Mix Manhole, Electrical and System Controls, Equipment Startups and staff training, Site Grading / Fencing / Restoration and punchlist items.

Specific progress to date can be summarized as follows:

1. Pretreatment Building Improvements - complete
2. Construct a new 82,000 gallon equalization basin - complete except for grating
3. Construct a new rapid mix manhole with ferric chloride addition - complete except for cover
4. Construct a new control structure to feed the final clarifiers - complete except for grating
5. Construct a new effluent metering manhole - complete
6. Miscellaneous electric actuator valve replacements - complete
7. Re-routing the existing WAS line into the biosolids storage tanks - complete
8. Furnish and install new blowers for the existing aerated biosolids storage tank - complete
9. Furnish and install a new backwash blower - complete
10. Construct a 30,000 gallon backwash supply water storage tank - complete except for tank cover

Contract changes 14 through 15 were identified during late August. These changes may be authorized by City staff depending upon costs required for the work. All changes are summarized in the “Costs” section below.

Project Schedule

The contractor’s proposed schedule (**attached - Project Schedule - 02.02.18**), has not changed the past several months with overall construction estimated to take about forty (40) weeks - with a projected substantial completion date of August 31, 2018. Based on the contractor’s proposed schedule, the following is a brief summary of future construction activities:

September - Debugging of Electrical and System Controls, Staff Training, Installation of Extra Electrical Outlets, Water Tank Loadout Standpipe Freeze Protection, Site Grading/ Fencing/ Restoration and punchlist items.

SCADA, system controls, and associated electrical equipment installations have been completed and are being tested.

The contractor generally appears to be on the schedule they proposed for this project. Final completion will be extended into September or October to accommodate extra work and correction of punchlist items.

Completion Dates

The contract calls for substantial completion (defined as operation of all new structures and equipment with the ability to treat wastewater as intended) by August 31, 2018.

Costs

Approved and proposed changes to date have the potential to increase construction costs for the waste water portion of the project by \$60,990.96 as follows:

Approved Changes	Cost
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab	\$ 424.00
2 - Field Order #2:	
a - RAS Piping Relocation to EQ Basin	\$ 11,923.13
b - Remove and Replace Three (3) Four Inch Plug Valves	\$ 2,464.93
c - Relocate 6" Oxidation Ditch Drain Line	\$ (4,221.27)
3 - Field Order #3 - Pipe Insulation (EQ Basin to Oxidation Ditch)	\$ 1,822.51
4 - Relocate 6" RW Piping to South Oxidation Ditch	TBD - \$2,500
5 - Pipe Insulation (extra as needed)	TBD - \$2,000
6 - Sludge Tank Diffuser Modifications (revised from coarse to fine nozzles)	\$3,305
7 - Field Order #4:	
a - Modify Clarifier Splitter Box	\$399.18
b - Clarifier Tank Weir Gates (2)	
8 - BMI Proposal Request #4 - Minor Electrical Modifications	
a - Minor Wiring and Conduit Additions at WWTP	\$4,417.97
b - Transfer Switch Modifications at PW Bldg	\$21,601.98
c - Emergency Lighting Revisions at PW Bldg	\$4,657.30
9 - EQ Basin Mixer	\$16,086.86
10 - SCADA System - Computer Modifications (deduct)	(\$7,580.09)
11 - Revise Pre-Treatment Exhaust Fan Wiring and Controls	\$1,641.72
12 - Raise Rapid Mix Manhole	\$1,287.74

The following information is provided for the items identified above:

1. During construction review of the Water Storage Tank plans, additional rebars were needed for the base slab - cost determined to be \$424.00. This work is complete.
2. Field Orders:
 - a. Staff found the existing 6” RW piping to be improperly installed and full of solids. As a result, it was decided the existing RAS piping should be relocated / extended to the EQ Basin to avoid future use of this piping - cost estimated at \$11,923.13. This work is complete.
 - b. RAS pump inlet isolation valves (3) have been identified by staff as failing. These can be replaced as a part of the project - cost determined to be \$2,464.93. This work is complete.
 - c. The oxidation ditch drains are being relocated to a location which avoids a building conflict - contractor has offered a credit (deduct) of \$4,221.27 for this change. This work is complete.
3. EQ Basin and Oxidation Ditch pipe connections will result in less than 7-ft of bury depth. To prevent freezing, 4-inch thick insulation 4-ft wide is to be placed over these pipes where there is less than 7-ft of cover. \$1,822.51 of work has been completed.
4. The new 12” EQ basin pipe conflicted with the existing 6” RW pipe to the south oxidation ditch. No records from the original construction plan were found during design or by City staff that show the RW pipe elevation. The 6” RW pipe was raised / reinstalled when it was encountered - contractor is to submit costs associated with this work for review and approval. Costs are tentatively estimated at about \$2,500.
5. Some additional existing tank and pipe connections may result in less than a 7-ft of bury depth. To prevent freezing, 4-inch thick insulation 4-ft wide is to be placed over pipe locations with less than 7-ft of cover - costs to be determined where this situation is encountered. Costs are tentatively estimated at \$2,000 or less.
6. Sludge Tank Diffuser Modifications - BMI design called for coarse nozzle diffusers, City staff directed those be changed to fine nozzle diffusers. Final costs for this change have been determined to be \$3,305.00 based on correspondence from Eagle. This work is complete.
7. Field Order #4 - final costs for this work have been determined to be \$399.18 based on a proposal provided by Eagle (**attached - Field Order #4 ECCI Proposal - 08.17.18**):
 - a. Modify Clarifier Splitter Box - modifications provide for temporary pipe closures and structure drainage while structure remains unused. This work is complete.
 - b. Clarifier Tank Weir Gates - gates provided were based on faulty as-built information. The gates provided allow for 12” lift while the existing gates provide for 18” lift. BMI directed gates be modified to provide for the 18” lift needed to operate the clarifiers. This work is complete.
8. BMI Proposal Request #4 - Minor Electrical Modifications requested by BMI.
 - a. Minor Wiring and Conduit Additions at WWTP - provides for wiring and conduits to grit pump and EQ Blower that were not shown in the plans. Final cost of this work has been determined to be \$4,417.97 based on a proposal provided by Eagle. This work is complete.
 - b. Transfer Switch Modifications at PW Bldg - this work is necessary to power the PW Bldg from the new stand by generator. Location of the new switch in the PW Bldg must be revised from that shown in the plans due to location of main power line feeding the PW Bldg. Final cost of this work has been determined to be \$21,601.98 based on a proposal provided by Eagle. This work is complete.
 - a. Emergency Lighting Revisions at PW Bldg - provides for emergency lighting, per code, to be on a dedicated circuit which is not currently the case for the existing lighting. Final cost of this work has been determined to be \$4,657.30 based on a proposal provided by Eagle. This work is complete.
9. EQ Basin Mixer - as a result of the RAS Piping rerouting (change 2.a described above) a mixer has

been installed in the EQ Basin to avoid solids settlement issues. Final cost of this work has been determined to be \$16,086.86 based on a proposal provided by Eagle. This work is complete.

10. SCADA System - Computer Modifications (deduct) - the existing computer at the WWTP can be used versus a new one planned to be supplied by the contractor. A credit of \$7,580.09 has been provided the city for continued use of their existing computer for SCADA purposes. This work is complete.
11. Exhaust Fan Wiring and Controls - during construction the existing wiring and controls for the pre-treatment building exhaust fan were determined to be inadequate. Final costs of this work has been determined to be \$1,641.72 based on a proposal provided by Eagle. This work is complete.
12. Rapid Mix Manhole - during construction the existing piping was found to be 2 feet lower than that shown in the plans and the new manhole had to be lowered as a result. The new manhole has been extended 2 feet higher to properly function. Final costs for this work have been determined to be \$1,287.74 - based on a proposal provided by Eagle (**attached - COR #2 Rapid Mix Manhole Extension - 08.17.18**). This work is complete.

Proposed Changes	Cost
13 - Revise Site Grading and Pavement (deduct)	(\$1,740.00)
14 - Add Electrical Outlets at Various Outdoor Locations	TBD
15 - Add Freeze Protection to Water Tank Loadout Standpipe	TBD

The following information is provided for the above item:

13. Revise Site Grading and Pavement - the contract requires replacement of disturbed surfaces to original condition. Localized flooding of buildings, walks, and pavements has been increasing and site drainage should be revised in conjunction with the restoration process. Staff has worked with a subcontractor to develop the work and costs associated with this - contractor has offered a credit (deduct), in the amount of \$1,740.00 for restoration they would not be required to perform. This credit is felt to be inadequate and negotiations continue.
14. Add Electrical Outlets at Various Outdoor Locations - the contract providers for electrical outlets at overhead light locations only. City staff desires outlets at other various locations around the facility to minimize their use of extension cords. BMI is currently seeking contractor costs for this work. This work will likely need to be done soon so site restoration work can be completed this fall.
15. Add Freeze Protection to Water Tank Loadout Standpipe - the plans do not contain provisions for this work. City staff is concerned water standing in the loadout pipe during the winter could freeze disabling the water loadout system. BMI is seeking costs for work to remedy this situation.

Items 1 through 12 above have been previously reviewed by staff and City Council and these changes have been found to be acceptable. Changes 11 and 12 have been authorized by City staff and are provided for City Council review. Costs for change 13, 14, and 15 are currently being developed. Changes 1, 2, 3, and 6 thru 12 have been authorized by BMI and have been incorporated into pay requests as appropriate (totaling \$58,230.96). Costs for changes 4 and 5 will be reported back to Council and incorporated into pay requests as final costs are determined (currently estimated at \$4,500.00). Changes 13 thru 15 should be reviewed by Council and direction provided to staff accordingly.

A construction allowance of \$75,000 to pay for possible contract changes was incorporated into the construction contract for this project. So far, \$60,990.96 has been tentatively charged towards that allowance.

Well construction has been completed and final costs are \$67,940, which is \$455 less than contracted for.

Engineering services for the project have been continuing as agreed to according to the existing “Not to Exceed” contract. No cost changes are anticipated at this time.

Total project costs to date and estimated final costs can be summarized as follows:

Total Estimated Project Cost	Original Cost	Changes	Costs to Date	Estimated Final Costs
WWTF Construction	\$2,152,000	\$ 60,991	\$ 2,095,671	\$ 2,212,991
Well Construction	\$ 68,395	\$ (455.00)	\$ 67,940	\$ 67,940
Engineering	\$ 198,400	\$ (514.00)	\$ 197,886	\$ 197,886
Totals	\$ 2,418,795	\$ 60,022	\$ 2,361,497	\$ 2,478,817
Other City Costs (pre 2018)			\$188,016	\$2,666,833

Please see project cost summary (**attached - Project Cost Summary - 09.05.18**) for project cost details.

Attachments

1. Project Schedule - 02.02.18
2. Field Order #4 ECCI Proposal - 08.17.18
3. COR #2 Rapid Mix Manhole Extension - 08.17.18
4. Project Cost Summary - 09.05.18

PROPOSAL
Field Order #4



Eagle Construction Company, Inc.
515 9th Ave NW
Little Falls, MN 56345

ATTN: John Graupman - BMI
1960 Premier Drive
Mankato, MN 56001

Project: Crosslake WWTF Improvements
Date: 8/17/18

Description: Per Field Order #4 for the modification to clarifier splitter weir gate and modifications to the splitter structure. Additional cost are:

DESCRIPTION	Qty	Units	RATE	TOTAL
Materials	1	LS	\$118.00	\$118.00
Labor	3	MHS	\$75.00	\$225.00
		Mark- up 15%		\$51.45
		Bond 1.2%		\$4.73

TOTAL AMOUNT \$399.18

Thank you for the opportunity to Quote this work for you.

Regards,

A blue ink signature of Jayd Newman, consisting of a stylized first name and a last name that is partially obscured by the signature's flourish.

Jayd Newman
Eagle Construction Company, Inc.
320-632-5429

COR #2



Eagle Construction Company, Inc.
515 9th Ave NW
Little Falls, MN 56345

ATTN: John Graupman - BMI
1960 Premier Drive
Mankato, MN 56001

Project: Crosslake WWTF Improvements
Date: 8/17/18

Description: Upon installation of the Rapid Mix manhole; the existing pipe elevations were deeper than detailed on the plans. A 2' precast riser section is required to gain the additional free board. Additional costs are:

DESCRIPTION	Qty	Units	RATE	TOTAL
2' Precast Riser	1	EA	\$665.00	\$665.00
Galv. Hardware Pins	6	EA	\$25.00	\$150.00
Labor	3	MHS	\$75.00	\$225.00
270 Backhoe	0.5	HRS	\$133.00	\$66.50
			Mark- up 15%	\$165.98
			Bond 1.2%	\$15.27

TOTAL AMOUNT \$1,287.74

Thank you for the opportunity to Quote this work for you.

Regards,

Jayd Newman
Eagle Construction Company, Inc.
320-632-5429

City of Crosslake
Waste Water Treatment Facility Project
 BMI Project # - M25.113425

Project Cost Summary
 September 5, 2018

Item	Contract Amounts	Changes	Estimated Final Amounts	Notes
Eagle - Contract Amount				
Construction	\$ 2,152,000.00		\$ 2,152,000.00	construction amount
Allowance	\$ 75,000.00			contingency
Contract Changes				
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab		\$ 424.00	\$ 424.00	required - requested by BMI
2 - Field Order #2:				
a - BMI Proposal Request #1 - RAS Piping Relocation to EQ Basin		\$ 11,923.13	\$ 11,923.13	optional - requested by city
b - BMI Proposal Request #2 - Remove and Replace Three (3) Four Inch Plug Valves		\$ 2,464.93	\$ 2,464.93	optional - requested by city
c - Eagle Proposal Request #1 - Relocate 6" Oxidation Ditch Drain Line (deduct)		\$ (4,221.27)	\$ (4,221.27)	optional - requested by Eagle
3 - Field Order #3 - Pipe Insulation (Eq Basin to Oxidation Ditch)		\$ 1,822.51	\$ 1,822.51	optional - requested by city
4 - Relocate 6" RW Piping to South Oxidation Ditch		\$ 2,500.00	TBD	required - requested by BMI
5 - Pipe Insulation (additional - as needed)		\$ 2,000.00	TBD	optional - requested by city
6 - Sludge Tank Diffuser Modifications (revised from coarse to fine nozzles)		\$ 3,305.00	\$ 3,305.00	optional - requested by city
7 - Field Order #4:				
a - Modify Clarifier Splitter Box				required - requested by BMI
b - Lengthen Clarifier Weir Gates (2)		\$ 399.18	\$ 399.18	required - requested by BMI
8 - BMI Proposal Request #4 - Minor Electrical Modifications				
a - Minor Wiring and Conduit Additions at WWTP		\$ 4,417.97	\$ 4,417.97	required - requested by BMI
b - Transfer Switch Modifications at PW Bldg (T & M - NTE)		\$ 21,601.98	\$ 21,601.98	required - requested by BMI
c - Emergency Lighting Revisions at PW Bldg (T & M - NTE)		\$ 4,657.30	\$ 4,657.30	required - Electrical Inspector
9 - EQ Basin Mixer		\$ 16,086.86	\$ 16,086.86	optional - requested by city
10 - SCADA System - Computer Modifications (deduct)		\$ (7,580.09)	\$ (7,580.09)	required - requested by Eagle
11 - Revise Pre-Treatment Exhaust Fan Wiring and Controls		\$ 1,641.72	\$ 1,641.72	required - requested by BMI
12 - Raise Rapid Mix Manhole		\$ 1,287.74	\$ 1,287.74	required - requested by BMI
13 - Revise Site Grading and Pavement		\$ (1,740.00)	TBD	optional - requested by City
14 - Add Electrical Outlets at Various Outdoor Locations		TBD	TBD	optional - requested by City
15 - Add Freeze Protection to Water Tank Loadout Standpipe		TBD	TBD	required - requested by BMI
Totals	\$ 2,227,000.00	\$ 60,990.96	\$ 2,210,230.96	
Pay Request # / Date	#12 - 08/29/18			
Eagle - Work Completed to Date	\$ 2,095,670.96			
Eagle - Paid to Date	\$ 1,857,704.39			
Eagle - Retainage	\$ 104,783.55			
Eagle - Pay Request	\$ 133,183.02			
Item	Contract Amounts	Changes	Final Amounts	
Blue Water Wells - Construction Costs				
Construction	\$ 68,395.00	\$ -	\$ 68,395.00	
Contract Changes				
1 - Test Pump		\$ (2,000.00)	\$ (2,000.00)	
2 - Water Analysis		\$ (1,750.00)	\$ (1,750.00)	
3 - Casing		\$ (1,080.00)	\$ (1,080.00)	
4 - Open Hole		\$ (1,125.00)	\$ (1,125.00)	
5 - Increase Pump and Casing Sizes (to 500 gpm capacity)		\$ 5,500.00	\$ 5,500.00	
Totals	\$ 68,395.00	\$ (455.00)	\$ 67,940.00	
Pay Request # / Date	#1 (Final) - 9/18/17		\$ 67,940.00	
Item	Contract Amount	Changes	Cost to Date	Estimated Final Amounts
BMI - Design and Construction Services Costs				
Task 1 - Site Work Design	\$ 8,400.00	\$ (9.00)	\$ 8,391.00	\$ 8,391.00
Task 2 - Waste Water Facility Design	\$ 82,000.00	\$ -	\$ 82,000.00	\$ 82,000.00
Task 3 - Bidding Services	\$ 8,000.00	\$ (505.00)	\$ 7,495.00	\$ 7,495.00
Task 4 - Water Supply Well and Storage Tank Design (Alternate)	\$ 30,000.00	\$ -	\$ 30,000.00	\$ 30,000.00
Task 5 - Construction Services	\$ 70,000.00	\$ -	\$ 70,000.00	\$ 70,000.00
Totals	\$ 198,400.00	\$ (514.00)	\$ 197,886.00	\$ 197,886.00
Total Estimated Project Cost	Original Cost	Changes	Costs to Date	Estimated Final Amounts
WWTF Construction	\$ 2,152,000.00	\$ 60,990.96	\$ 2,095,670.96	\$ 2,212,990.96
Well Construction	\$ 68,395.00	\$ (455.00)	\$ 67,940.00	\$ 67,940.00
Engineering	\$ 198,400.00	\$ (514.00)	\$ 197,886.00	\$ 197,886.00
Totals	\$ 2,418,795.00	\$ 60,021.96	\$ 2,361,496.96	\$ 2,478,816.96
Other Related City Costs:			Costs to Date	Estimated Final Amounts
City costs prior to 2016 - WIP at 12/31/2016			\$ 142,416.61	\$ 142,416.61
Other 2017 City Costs - USA Bluebook, Fiber Upgrades, Elite Fence and Deck, Etc			\$ 45,599.90	\$ 45,599.90
Other 2018 City Costs -			TBD	TBD
Totals			\$ 188,016.51	\$ 188,016.51
		TOTAL CITY COSTS	\$ 2,549,513.47	\$ 2,666,833.47

Legend:

- Proposed change or estimated cost
- Authorized / approved changes / costs